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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,480	11/28/2003	Gary K. Boon	14535	8016
293 7590 08/31/2007 Ralph A. Dowell of DOWELL & DOWELL P.C. 2111 Eisenhower Ave Suite 406 Alexandria, VA 22314			EXAMINER TANG, KENNETH	
			ART UNIT 2195	PAPER NUMBER
			MAIL DATE 08/31/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/722,480

Applicant(s)

BOON ET AL.

Examiner

Kenneth Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-15 is/are rejected.
- 7) ☐ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/11/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-15 are presented for examination.

#### ***Specification***

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (see page 1, line 7 of the Specification). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The claimed invention is directed to non-statutory subject matter. In claims 12-13, the apparatus is software that schedules usage of a CPU. This software apparatus is not a process, a machine, a manufacture, nor a composition of matter, thus fails to fall under one of the four categories of inventions that Congress deemed to be appropriate subject matter of a patent (see MPEP 2106).

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For the claims 12-13 to actually be an apparatus (i.e., a "machine"), it is necessary to include parts of a device or a combination of devices; i.e., physical objects/matter (some form of structural part of a device or combination of devices as part of what's claimed). It appears that the body of the claim only recites method steps (process steps). There are no structures to make the supposed apparatus actually an apparatus. Thus, claims 12-13 are inaccurate, incomplete, indefinite, and therefore, rejected under 35 U.S.C. 112, 2<sup>nd</sup> paragraph.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 1-8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reznak (US 6,223,201 B1) in view of Fong et al. (hereinafter Fong) (US 6,263,359 B1).**

6. As to claim 1, Reznak teaches a method of scheduling central processing unit (CPU) usage by a given task comprising determining a target CPU usage such as an allocated percentage of a processing time or a selected portion of processing time

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allocated (col. 5, lines 35-40, col. 2, lines 11-19). Reznec's invention compares the actual portion of processing time utilized by a particular task against a selected portion of processing time allocated to that task. If the actual portion of processing time utilized by a particular task exceeds the selected portion of processing time allocated to that task, execution of the particular task is suspended for a selected penalty time.

7. Applicant's Specification describes that the target CPU usage is a percentage of the total available CPU usage (see page 7, lines 9-10). Therefore, Reznec's allocated percentage of processing time or a selected portion of processing time allocated satisfies the Applicant's definition of the target CPU usage.

8. Reznec is silent in associating said given task with a top level class and sub-class, wherein weights are associated with said sub-class and a target CPU usage associated with said top level class.

9. However, Fong teaches a method of scheduling CPU usage by a given task (see Abstract, col. 1, lines 8-9 and 45-61) that associates said given task with a top level class and sub-class (job/task classes arranged in general hierarchy) (col. 2, lines 42-43, col. 14, lines 31-32, col. 3), wherein weights (weights or priority) are associated with said sub-class and a target CPU usage associated with said top level class (col. 12, lines 17-32, col. 14, lines 41-50, col. 2, lines 6-10 and 42-65, col. 10, lines 18-30). Fong teaches that the class is at the top level and subclasses are a lower level in the hierarchy.

10. Reznec and Fong are analogous art because they are both in the same field of endeavor of task scheduling/management based on processor utilization. One of ordinary skill in the art would have known modify Reznec's task management system and its

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determination of a target CPU usage to include the use of a hierarchy of classes with associated priorities and weights. The motivation/suggestion for doing so would have been to provide the predicted result of a very powerful framework to organize jobs such that a much "finer" degree of scheduling control can be obtained, as disclosed in Fong (col. 6, lines 10-12 and 41-44). Fong states that this is a significant advantage.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Rezneke with Fong to obtain the invention of claim 1.

11. As to claim 2, Rezneke teaches further comprising:

determining an actual usage of said CPU (PT utilized) by said given task in a first predetermined evaluation interval (col. 5, lines 25-57, col. 2, lines 8-23);

determining a penalty duration (penalty time  $T$  is calculated using the equation) for said given task based on said actual usage (PT utilized) and said target CPU usage (% of PT allocated) for said given task (col. 5, lines 25-57); and

applying a penalty to said given task for said penalty duration during a second predetermined evaluation interval (using the penalty assessment routine 76 after determination that actual portion of processing time utilized by each of the tasks exceeds the selected portion of processing time allocated to the task) (col. 5, lines 25-57, col. 2, lines 8-23, Fig. 7, 154).

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12. As to claim 3, Reznick teaches wherein said applying said penalty comprises demoting a scheduling priority associated with said given task. Reznick teaches applying penalties using the penalty assessment routine 76 that determines the penalty time from a formula (col. 5, lines 24-57). Fong teaches scheduling priorities are defined by one or more time-based functions (see Abstract). Therefore, it would be obvious to one of ordinary skill in the art that a scheduling priority should be demoted when receiving a penalty because a penalty causes a suspension in execution time (see Abstract and col. 5, lines 31-33). In other words, Fong shows that priorities are time-based and Reznick teaches that a penalty suspends execution time, which thus, should affect the priority of being scheduled.

13. As to claim 4, Reznick teaches wherein said penalty is applied continuously for said penalty duration (adding the penalty to a total penalty counter and then suspending execution for the duration of the penalty) (col. 5, lines 61-64).

14. As to claim 5, Reznick teaches wherein said penalty is applied during a plurality of periods over said second predetermined evaluation interval, such that a total duration of application of said penalty is equivalent to said penalty duration (col. 5, lines 28-64 and col. 8, lines 9-19).

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15. As to claim 6, Reznick teaches wherein said actual usage of said CPU by said given task in said first predetermined evaluation interval is a first actual usage and said penalty duration based on said first actual usage is a first penalty duration, said method further comprising:

determining a second actual usage of said CPU (PT utilized) by said given task in said second predetermined evaluation interval (col. 5, lines 25-57, col. 2, lines 8-23);

determining a second penalty duration (penalty time T is calculated using the equation) for said given task based on said second actual usage (PT utilized) and said target CPU usage (% of PT allocated) for said given task (col. 5, lines 25-57); and

applying said penalty to said given task for said second penalty duration during a third predetermined evaluation interval (using the penalty assessment routine 76 after determination that actual portion of processing time utilized by each of the tasks exceeds the selected portion of processing time allocated to the task) (col. 5, lines 25-57, col. 2, lines 8-23, Fig. 7, 154).

A second or additional penalty determination, calculation, and application can be made by another call to the penalty assessment routine 76.

16. As to claim 7, Fong teaches wherein said sub-class is associated with a parent class (col. 6, lines 1-12).



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17. As to claim 8, Fong teaches wherein said weight associated with said sub-class represents a relative share of a target CPU usage associated with said parent class (col. 12, lines 17-32 and col. 14, lines 34-50).

18. As to claim 10, Fong teaches wherein said top level class is said parent class of said sub-class (job/task hierarchy) (col. 5, lines 45-50, col. 6, lines 1-12).

19. As to claim 11, Fong teaches wherein a further sub-class of said top level class is said parent class of said sub-class (job/task hierarchy and sub-subclass) (col. 5, lines 45-50, col. 6, lines 1-12, col. 11, lines 9-10).

20. As to claims 12-13, they are rejected for the same reasons as stated in the rejections of claims 1-2, respectively.

21. As to claims 14-15, they are rejected for the same reasons as stated in the rejections of claims 1-2, respectively.

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*Allowable Subject Matter*

22. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

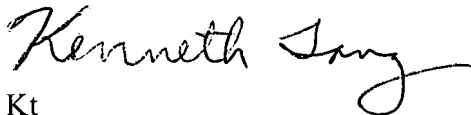
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kt

8/23/07